

09/879,231

REMARKS

Claims 26-37 are pending in the application with new claims 34-37 added herein.

Claims 26-33 stand rejected under 35 U.S.C. 102(b) as being anticipated by Basceri. Page 3 of the Office Action further alleges that Agarwal and Marsh disclose a capacitor similar to the invention. Applicants request reconsideration.

As a formal matter, Applicants note that none of the references can be used to establish a rejection under 35 U.S.C. 102(b). The present application properly makes a priority claim as a divisional application of U.S. Patent Application Serial No. 09/653,149, filed on August 31, 2000. Section 102(b) requires a showing that the invention was "patented" more than one year prior to the date of application. The priority date of the present application clearly precedes the filing date of Basceri, as well as Marsh and Agarwal. Accordingly, it is impossible for any of the cited references to show that the invention was "patented" more than one year prior to August 31, 2000. Rejection under 102(b) is thus improper and Applicants request withdrawal of such basis for the rejection.

Applicants assume that the rejection under 102(b) is a typographical error and that the Office intended to reject the claims under some other section of 35 U.S.C. 102. Accordingly, the remarks below are provided solely under such assumption. If the Office cannot establish a rejection under another section of 35 U.S.C. 102, then the remarks below should be considered withdrawn and not considered to form a part of the file history.

Claim 26 sets forth a capacitor construction that includes, among other features, a first capacitor electrode, a capacitor dielectric layer over the first electrode, a second capacitor electrode over the dielectric layer, and an atomic layer deposited conductive barrier layer to oxygen diffusion between the first and second electrodes. Pages 2-3 of the Office Action allege that Basceri discloses all of the features of claim 26. However, the

B

09/879,231

Office Action apparently failed to consider that claim 26 sets forth "an atomic layer deposited" conductive barrier layer to oxygen diffusion.

Basceri does not provide any mention whatever of atomic layer deposition nor of any other method for forming a barrier layer that can be considered atomic layer deposition. Page 5, line 21 to page 10, line 15 and elsewhere in the present specification provide an extensive discussion of atomic layer deposition and characterize the scope and meaning of such term. The Office Action does not provide any basis allowing a finding that Basceri discloses atomic layer deposition. Further, the referenced text of the present specification describes chemical and physical properties of an atomic layer deposited material that are not disclosed in Basceri. The Office Action does not provide any basis allowing a finding that Basceri somehow discloses chemical and/or physical properties of an atomic layer deposited conductive barrier layer. Merely suggesting such features is not sufficient to establish anticipation. Anticipation requires disclosure of each and every claim element. Basceri fails to disclose an atomic layer deposited conductive barrier layer. Accordingly, Basceri does not anticipate claim 26.

The Office Action fails to identify any teaching in Basceri that could reasonably be considered to disclose an atomic layer deposited material. If the Office believes such a teaching exists, then Applicants respectfully request a reference to a specific column and line number providing such teaching along with explanation of how such teaching is considered to disclose an atomic layer deposited conductive barrier layer. Notably, 35 C.F.R §1.104(c)(2) requires that the pertinence of each reference must be clearly explained. MPEP 706. Presently, the Office Action merely refers to all 16 columns and one figure of the present specification. Such a broad reference to text in the cited art does not meet the standard of 35 C.F.R 1.104(c)(2).

09/879,231

Claims 27-30, 34, and 35 depend from claim 26 are also not anticipated at least for such reason as well as the additional limitations of such claims not disclosed. For example, claim 34 sets forth that the barrier layer consists of palladium or palladium alloys. Basceri does not provide any disclosure of a palladium barrier layer. Also for example, claim 35 sets forth that the barrier layer includes a plurality of atomic layer deposited monolayers. Claim 35 thus recites a specific structure of the barrier layer as including monolayers. Basceri does not provide any disclosure of a barrier layer that includes monolayers.

Claim 31 sets forth a capacitor construction that includes, among other features, a first capacitor electrode, a conductive barrier layer to oxygen diffusion over the first electrode, a capacitor dielectric layer over the first electrode, and a second capacitor electrode over the dielectric layer. The barrier layer includes a chemisorption product of first and second precursor layers. Pages 2-3 of the Office Action allege disclosure of every element in claim 31. However, review of Basceri reveals that no disclosure whatever exists of any chemisorption process or a barrier layer including a chemisorption product.

Pursuant to the specific scope of chemisorption and chemisorption products described in the present specification, a chemical vapor deposition product of multiple gaseous precursors in the gas phase cannot be considered a "chemisorption product of first and second precursor layers." The Office Action further does not provide any basis allowing a finding that some non-explicit teaching in Basceri can nevertheless be considered to disclose the claimed features. Applicants respectfully request identification by specific column and line number along with an appropriate explanation of such a teaching if the Office believes it exists. Absent such a showing, Basceri does not disclose each and every element of claim 31. Accordingly, Basceri does not anticipate claim 31.

09/879,231

Claims 32, 33, and 36 depend from claim 31 and are not anticipated at least for such reason as well as the additional limitations of such claims not disclosed. For example, claim 36 sets forth that the first and second precursor layers each comprise one atomic layer deposited monolayer. As described above with regard to claims 26 and 35, Basceri does not disclose atomic layer deposition and further does not disclose any monolayer structure.

New claim 37 sets forth a capacitor construction that includes, among other features, a first capacitor electrode, a conductive barrier layer to oxygen diffusion over the first electrode, a capacitor dielectric layer over the first electrode, and a second capacitor electrode over the dielectric layer. The barrier layer includes palladium or palladium alloys as a chemisorption product of first and second precursor layers. As discussed above regarding claim 34, Basceri does not disclose a barrier layer including palladium or palladium alloys. As also discussed above regarding claim 31, Basceri does not disclose a chemisorption product of first and second precursor layers. At least for such reasons, Basceri does not anticipate claim 37.

At least for the reasons set forth above, Basceri does not anticipate claims 26-37. Applicants request allowance of such claims in the next Office Action.

Page 3 of the Office Action further alleges a rejection could be made for anticipation by Agarwal and Marsh. However, detailed review of such references reveals the same deficiencies as discussed above for Basceri. Specifically, Agarwal and Marsh do not disclose "an atomic layer deposited" conductive barrier layer. Agarwal and Marsh do not disclose a barrier layer including palladium or palladium alloys. Also, Agarwal and Marsh do not disclose a barrier layer including a plurality of atomic layer deposited monolayers. Further, such references do not disclose "a chemisorption product of first and second

09/879,231

precursor layers." Still further, such references do not disclose the first and second precursor layer each including one atomic layer deposited monolayer. Accordingly, claims 26-37 are also not anticipated by Agarwal or Marsh.

In the event that the Office replies with a rejection of any claim under 35 U.S.C. 103 using Basceri, Agarwal, or Marsh, Applicants make the following assertion. Under 35 U.S.C. 103(c) obviousness cannot be established using Basceri, Agarwal, or Marsh, since none of such references qualify as a 102(a-d) reference. Under 103(c) obviousness cannot be established using art qualifying only under 102(e-g) where the claimed invention is owned by the same person as the alleged prior art subject matter. Applicants note that Basceri, Agarwal, Marsh, and the present application are each assigned to Micron Technology, Inc.

Applicants herein establish patentability of claims 26-37 over all of the cited art. Applicants request allowance of all pending claims in the next Office Action.

Respectfully submitted,

Dated: 31 Jan 2002

By: 

James E. Lake
Reg. No. 44,854